

Harvey Winston, paying teller of the First National Bank of Chicago, stripped the band from a bundle of twenty dollar bills, counted out seventeen of them and added them to the pile on the counter before him.

The teller turned to the stacked pile of bills. They were gone! And no one had been near!

"Twelve hundred and thirty-one tens," he read from the payroll change slip before him. The paymaster of the Cramer Packing Company nodded an assent and Winston turned to the stacked bills in his rear currency rack. He picked up a handful of bundles and turned back to the grill. His gaze swept the counter where, a moment before, he had stacked the twenties, and his jaw dropped.

"You got those twenties, Mr. Trier?" he asked.

"Got them? Of course not, how could I?" replied the paymaster. "There they are...."

His voice trailed off into nothingness as he looked at the empty counter.

"I must have dropped them," said Winston as he turned. He glanced back at the rear rack where his main stock of currency was piled. He stood paralyzed for a moment and then reached under the counter and pushed a button.

The bank resounded instantly to the clangor of gongs and huge steel grills shot into place with a clang, sealing all doors and preventing anyone from entering or leaving the bank. The guards sprang to their stations with drawn weapons and from the inner offices the bank officials came swarming out. The cashier, followed by two men, hurried to the paying teller's cage.

"What is it, Mr. Winston?" he cried.

"I've been robbed!" gasped the teller.

"Who by? How?" demanded the cashier.

"I—I don't know, sir," stammered the teller. "I was counting out Mr. Trier's payroll, and after I had stacked the twenties I turned to get the tens. When I

turned back the twenties were gone."

"Where had they gone?" asked the cashier.

"I don't know, sir. Mr. Trier was as surprised as I was, and then I turned back, thinking that I had knocked them off the counter, and I saw at a glance that there was a big hole in my back racks. You can see yourself, sir."

The cashier turned to the paymaster.

"Is this a practical joke, Mr. Trier?" he demanded sharply.

"Of course not," replied the paymaster. "Winston's grill was closed. It still is. Granted that I might have reached the twenties he had piled up, how could I have gone through a grill and taken the rest of the missing money without his seeing me? The money disappeared almost instantly. It was there a moment before, for I noticed when Winston took the twenties from his rack that it was full."

"But someone must have taken it," said the bewildered cashier. "Money doesn't walk off of its own accord or vanish into thin air—"

A bell interrupted his speech.

"There are the police," he said with an air of relief. "I'll let them in."

The smaller of the two men who had followed the cashier from his office when the alarm had sounded stepped forward and spoke quietly. His voice was low and well pitched yet it carried a note of authority and power that held his auditors' attention while he spoke. The voice harmonized with the man. The most noticeable point about him was the inconspicuousness of his voice and manner, yet there was a glint of steel in his gray eyes that told of enormous force in him.

"I don't believe that I would let them in for a few moments, Mr. Rogers," he said. "I think that we are up against something a little different from the usual bank robbery."

"But, Mr. Carnes," protested the cashier, "we must call in the police in a case like this, and the sooner they take charge the better chance there will be of apprehending the thief."

"Suit yourself," replied the little man with a shrug of his shoulders. "I merely offered my advice."

"Will you take charge, Mr. Carnes?" asked the cashier.

"I can't supersede the local authorities in a case like this," replied Carnes. "The secret service is primarily interested in the suppression of counterfeiting and the enforcement of certain federal statutes, but I will be glad to assist the local authorities to the best of my ability, provided they desire my help. My advice to you would be to keep out the patrolmen who are demanding admittance and get in touch with the chief of police. I would ask that his best detective together with an expert finger-print photographer be sent here before anyone else is admitted. If the patrolmen are allowed to wipe their hands over Mr. Winston's counter they may destroy valuable evidence."

"You are right, Mr. Carnes," exclaimed the cashier.

"Mr. Jervis, will you tell the police that there is no violence threatening and ask them to wait for a few minutes? I'll telephone the chief of police at once."

As the cashier hurried away to his telephone Carnes turned to his companion who had stood an interested, although silent spectator of the scene. His companion was a marked contrast to the secret service operator. He stood well over six feet in height, and his protruding jaw and shock of unruly black hair combined with his massive shoulders and chest to give him the appearance of a man who labored with his hands—until one looked at them. His hands were in strange contrast to the rest of him. Long, slim, mobile hands they were, with tapering nervous fingers—the hands of a thinker or of a musician. Telltale splotches of acid told of hours spent in a laboratory, a tale that was confirmed by the almost imperceptible stoop of his shoulders.

"Do you agree with my advice, Dr. Bird?" asked Carnes deferentially.

The noted scientist, who from his laboratory in the Bureau of Standards had sent forth many new things in the realms of chemistry and physics, and who, incidentally, had been instrumental in solving some of the most baffling mysteries which the secret service had been called upon to face, grunted.

"It didn't do any harm," he said, "but it is rather a waste of time. The thief wore gloves."

"How in thunder do you know that?" demanded Carnes.

"It's merely common sense. A man who can do what he did had at least some rudiments of intelligence, and even the feeblest-minded crooks know enough to wear gloves nowadays."

Carnes stepped a little closer to the doctor.

"Another reason why I didn't want patrolmen tramping around," he said in an undertone, "is this. If Winston gave the alarm quickly enough, the thief is probably still in the building."

"He's a good many miles away by now," replied Dr. Bird with a shrug of his shoulders.

Carnes' eyes opened widely. "Why?—how?—who?" he stammered. "Have you any idea of who did it, or how it was done?"

"Possibly I have an idea," replied Dr. Bird with a cryptic smile. "My advice to you, Carnes, is to keep away from the local authorities as much as possible. I want to be present when Winston and Trier are questioned and I may possibly wish to ask a few questions myself. Use your authority that far, but no farther. Don't volunteer any information and especially don't let my name get out. We'll drop the counterfeiting case we were summoned here on for the present and look into this a little on our own hook. I will want your aid, so don't get tied up with the police."

"At that, we don't want the police crossing our trail at every turn," protested Carnes.

"They won't," promised the doctor. "They will never

get any evidence on this case, if I am right, and neither will we—for the present. Our stunt is to lie low and wait for the next attempt of this nature and thus accumulate some evidence and some idea of where to look."

"Will there be another attempt?" asked Carnes.

"Surely. You don't expect a man who got away with a crime like this to quit operations just because a few flatfeet run around and make a hullabaloo about it, do you? I may be wrong in my assumption, but if I am right, the most important thing is to keep all reference to my name or position out of the press reports."

The cashier hastened up to them.

"Detective-Captain Sturtevant will be here in a few minutes with a photographer and some other men," he said. "Is there anything that we can do in the meantime, Mr. Carnes?"

"I would suggest that Mr. Trier and his guard and Mr.

Winston go into your office," replied Carnes. "My assistant and I would like to be present during the questioning, if there are no objections."

"I didn't know that you had an assistant with you," answered the cashier.

Carnes indicated Dr. Bird.

"This gentleman is Mr. Berger, my assistant," he said. "Do you understand?"

"Certainly. I am sure there will be no objection to your presence, Mr. Carnes," replied the cashier as he led the way to his office.

A few minutes later Detective-Captain Sturtevant of the Chicago police was announced. He acknowledged the introductions gruffly and got down to business at once.

"What were the circumstances of the robbery?" he asked.

Winston told his story, Trier and the guard confirming it.

"Pretty thin!" snorted the detective when they had finished. He whirled suddenly on Winston.

"Where did you hide the loot?" he thundered.

"Why—uh—er—what do you mean?" gulped the teller.

"Just what I said," replied the detective. "Where did you hide the loot?"

"I didn't hide it anywhere," said the teller. "It was stolen."

"You had better think up a better one," sneered Sturtevant. "If you think that you can make me believe that that money was stolen from you in broad daylight with two men in plain sight of you who didn't see it, you might just as well get over it. I know that you have some hiding place where you have slipped the stuff and the quicker you come clean and spill it, the better it will be for you. Where did you hide it?"

"I didn't hide it!" cried the teller, his voice trembling. "Mr. Trier can tell you that I didn't touch it from the time I laid it down until I turned back."

"That's right," replied the paymaster. "He turned his back on me for a moment, and when he turned back, it was gone."

"So you're in on it too, are you?" said Sturtevant.

"What do you mean?" demanded the paymaster hotly.

"Oh nothing, nothing at all," replied the detective. "Of course Winston didn't touch it and it disappeared and you never saw it go, although you were within three feet of it all the time. Did *you* see anything?" he demanded of the guard.

"Nothing that I am sure of," answered the guard. "I thought that a shadow passed in front of me for an instant, but when I looked again, it was gone."

Dr. Bird sat forward suddenly. "What did this shadow look like?" he asked.

"It wasn't exactly a shadow," said the guard. "It was as if a person had passed suddenly before me so quickly that I couldn't see him. I seemed to feel that there was someone there, but I didn't rightly see anything."

"Did you notice anything of the sort?" demanded the doctor of Trier.

"I don't know," replied Trier thoughtfully. "Now that Williams has mentioned it, I did seem to feel a breath of air or a motion as though something had passed in front of me. I didn't think of it at the time."

"Was this shadow opaque enough to even momentarily obscure your vision?" went on the doctor.

"Not that I am conscious of. It was just a breath of air such as a person might cause by passing very rapidly."

"What made you ask Trier if he had the money when you turned around?" asked the doctor of Winston.

"Say-y-y," broke in the detective. "Who the devil are you, and what do you mean by breaking into my examination and stopping it?"

Carnes tossed a leather wallet on the table.

"There are my credentials," he said in his quiet voice. "I am chief of one section of the United States Secret Service as you will see, and this is Mr. Berger, my assistant. We were in the bank, engaged on a counterfeiting case, when the robbery took place. We have had a good deal of experience along these lines and we are merely anxious to aid you."

Sturtevant examined Carnes' credentials carefully and returned them.

"This is a Chicago robbery," he said, "and we have had a little experience in robberies and in apprehending robbers ourselves. I think that we can get along without your help."

"You have had more experience with robberies than with apprehending robbers if the papers tell the

truth," said Dr. Bird with a chuckle.

The detective's face flushed.

"That will be enough from you, Mr. Sherlock Holmes," he said. "If you open your mouth again, I'll arrest you as a material witness and as a possible accomplice."

"That sounds like Chicago methods," said Carnes quietly. "Now listen to me, Captain. My assistant and I are merely trying to assist you in this case. If you don't desire our assistance we'll proceed along our own lines without interfering, but in the meantime remember that this is a National Bank, and that our questions will be answered. The United States is higher than even the Chicago police force, and I am here under orders to investigate a counterfeiting case. If I desire, I can seal the doors of this bank and allow no one in or out until I have the evidence I desire. Do you understand?"

Sturtevant sprang to his feet with an oath, but the sight of the gold badge which Carnes displayed stopped him.

"Oh well," he said ungraciously. "I suppose that no harm will come of letting Winston answer your fool questions, but I'll warn you that I'll report to Washington that you are interfering with the course of justice and using your authority to aid the getaway of a criminal."

"That is your privilege," replied Carnes quietly. "Mr. Winston, will you answer Mr. Berger's question?"

"Why, I asked him because he was right close to the money and I thought that he might have reached through the wicket and picked it up. Then, too—"

He hesitated for a moment and Dr. Bird smiled encouragingly.

"What else?" he asked.

"Why, I can't exactly tell. It just seemed to me that I had heard the rustle that bills make when they are pulled across a counter. When I saw them gone, I thought that he might have taken them. Then when I turned toward him, I seemed to hear the rustle of bills

behind me, although I knew that I was alone in the cage. When I looked back the money was gone."

"Did you see or hear anything like a shadow or a person moving?"

"No—yes—I don't know. Just as I turned around it seemed to me that the rear door to my cage had moved and there may have been a shadow for an instant. I don't know. I hadn't thought of it before."

"How long after that did you ring the alarm gongs?"

"Not over a second or two."

"That's all," said Dr. Bird.

"If your high and mightiness has no further questions to ask, perhaps you will let me ask a few," said Sturtevant.

"Go ahead, ask all you wish," replied Dr. Bird with a laugh. "I have all the information I desire here for the present. I may want to ask other questions later, but

just now I think we'll be going."

"If you find any strange finger-prints on Winston's counter, I'll be glad to have them compared with our files," said Carnes.

"I am not bothering with finger-prints," snorted the detective. "This is an open and shut case. There would be lots of Winston's finger-prints there and no others. There isn't the slightest doubt that this is an inside case and I have the men I want right here. Mr. Rogers, your bank is closed for to-day. Everyone in it will be searched and then all those not needed to close up will be sent away. I will get a squad of men here to go over your building and locate the hiding place. Your money is still on the premises unless these men slipped it to a confederate who got out before the alarm was given. I'll question the guards about that. If that happened, a little sweating will get it out of them."

"Are you going to arrest me?" demanded Trier in surprise.

"Yes, dearie," answered the detective. "I am going to arrest you and your two little playmates if these Washington experts will allow me to. You will save a lot of time and quite a few painful experiences if you will come clean now instead of later."

"I demand to see my lawyer and to communicate with my firm," said the paymaster.

"Time enough for that when I am through with you," replied the detective.

He turned to Carnes.

"Have I your gracious permission to arrest these three criminals?" he asked.

"Yes indeed, Captain," replied Carnes sweetly. "You have my gracious permission to make just as big an ass of yourself as you wish. We're going now."

"By the way, Captain," said Dr. Bird as he followed Carnes out. "When you get through playing with your prisoners and start to look for the thief, here is a tip.

Look for a left-handed man who has a thorough knowledge of chemistry and especially toxicology."

"It's easy enough to see that he was left-handed if he pulled that money out through the grill from the positions occupied by Trier and his guard, but what the dickens led you to suspect that he is a chemist and a toxicologist?" asked Carnes as he and the doctor left the bank.

"Merely a shrewd guess, my dear Watson," replied the doctor with a chuckle. "I am likely to be wrong, but there is a good chance that I am right. I am judging solely from the method used."

"Have you solved the method?" demanded Carnes in amazement. "What on earth was it? The more I have thought about it, the more inclined I am to believe that Sturtevant is right and that it is an inside job. It seems to me impossible that a man could have entered in broad daylight and lifted that money in front of three men and within sight of a hundred more without some one getting a glimpse of him. He must have taken the money out in a grip or a sack or

something like that, yet the bank record shows that no one but Trier entered with a grip and no one left with a package for ten minutes before Trier entered."

"There may be something in what you say, Carnes, but I am inclined to have a different idea. I don't think it is the usual run of bank robbery, and I would rather not hazard a guess just now. I am going back to Washington to-night. Before I go any further into the matter, I need some rather specialized knowledge that I don't possess and I want to consult with Dr. Knolles. I'll be back in a week or so and then we can look into that counterfeiting case after we get this disposed of."

"What am I to do?" asked Carnes.

"Sit around the lobby of your hotel, eat three meals a day, and read the papers. If you get bored, I would recommend that you pay a visit to the Art Institute and admire the graceful lions which adorn the steps. Artistic contemplations may well improve your culture."

"All right," replied Carnes. "I'll assume a pensive air and moon at the lions, but I might do better if you told me what I was looking for."

"You are looking for knowledge, my dear Carnes," said the doctor with a laugh. "Remember the saying of the sages: To the wise man, no knowledge is useless."

A huge Martin bomber roared down to a landing at the Maywood airdrome, and a burly figure descended from the rear cockpit and waved his hand jovially to the waiting Carnes. The secret service man hastened over to greet his colleague.

"Have you got that truck I wired you to have ready?" demanded the doctor.

"Waiting at the entrance; but say, I've got some news for you."

"It can wait. Get a detail of men and help us to unload this ship. Some of the cases are pretty heavy."

Carnes hurried off and returned with a gang of laborers, who took from the bomber a dozen heavy packing cases of various sizes, several of them labelled either "Fragile" or "Inflammable" in large type.

"Where do they go, Doctor?" he asked when the last of them had been loaded onto the waiting truck.

"To the First National Bank," replied Dr. Bird, "and Casey here goes with them. You know Casey, don't you, Carnes? He is the best photographer in the Bureau."

"Shall I go along too?" asked Carnes as he acknowledged the introduction.

"No need for it. I wired Rogers and he knows the stuff is coming and what to do with it. Unpack as soon as you get there, Casey, and start setting up as soon as the bank closes."

"All right, Doctor," replied Casey as he mounted the truck beside the driver.

"Where do we go, Doctor?" asked Carnes as the truck rolled off.

"To the Blackstone Hotel for a bath and some clean clothes," replied the doctor. "And now, what is the news you have for me?"

"The news is this, Doctor. I carried out your instructions diligently and, during the daylight hours, the lions have not moved."

Dr. Bird looked contrite.

"I beg your pardon, Carnes," he said. "I really didn't think when I left you so mystified how you must have felt. Believe me, I had my own reasons, excellent ones, for secrecy."

"I have usually been able to maintain silence when asked to," replied Carnes stiffly.

"My dear fellow, I didn't mean to question your discretion. I know that whatever I tell you is safe, but there are angles to this affair that are so weird and

improbable that I don't dare to trust my own conclusions, let alone share them. I'll tell you all about it soon. Did you get those tickets I wired for?"

"Of course I got them, but what have two tickets to the A. A. U. track meet this afternoon got to do with a bank robbery?"

"One trouble with you, Carnes," replied the doctor with a judicial air, "is that you have no idea of the importance of proper relaxation. Is it possible that you have no desire to see Ladd, this new marvel who is smashing records right and left, run? He performs for the Illinois Athletic Club this afternoon, and it would not surprise me to see him lower the world's record again. He has already lowered the record for the hundred yard dash from nine and three-fifths to eight and four-fifths. There is no telling what he will do."

"Are we going to waste the whole afternoon just to watch a man run?" demanded Carnes in disgust.

"We will see many men run, my dear fellow, but there

is only one in whom I have a deep abiding interest, and that is Mr. Ladd. Have you your binoculars with you?"

"No."

"Then by all means beg, borrow or steal two pairs before this afternoon. We might easily miss half the fun without them. Are our seats near the starting line for the sprints?"

"Yes. The big demand was for seats near the finish line."

"The start will be much more interesting, Carnes. I was somewhat of a minor star in track myself in my college days and it will be of the greatest interest to me to observe the starting form of this new speed artist. Now Carnes, don't ask any more questions. I may be barking up the wrong tree and I don't want to give you a chance to laugh at me. I'll tell you what to watch for at the track."

The sprinters lined up on the hundred yard mark and

Dr. Bird and Carnes sat with their glasses glued to their eyes watching the slim figure in the colors of the Illinois Athletic Club, whose large "62" on his back identified him as the new star.

"On your mark!" cried the starter. "Get set!"

"Ah!" cried Dr. Bird. "Did you see that Carnes?"

The starting gun cracked and the runners were off on their short grind. Ladd leaped into the lead and rapidly distanced the field, his legs twinkling under him almost faster than the eye could follow. He was fully twenty yards in the lead when his speed suddenly lessened and the balance of the runners closed up the gap he had opened. His lead was too great for them, and he was still a good ten yards in the lead when he crossed the tape. The official time was posted as eight and nine-tenths seconds.

"Another thirty yards and he would have been beaten," said Carnes as he lowered his glasses.

"That is the way he has won all of his races," replied

the doctor. "He piles up a huge lead at first and then loses a good deal at the finish. His speed doesn't hold up. Never mind that, though, it is only an additional point in my favor. Did you notice his jaws just before the gun went?"

"They seemed to clench and then he swallowed, but most of them did some thing like that."

"Watch him carefully for the next heat and see if he puts anything into his mouth. That is the important thing."

Dr. Bird sank into a brown study and paid no attention to the next few events, but he came to attention promptly when the final heat of the hundred yard dash was called. With his glasses he watched Ladd closely as the runner trotted up to the starting line.

"There, Carnes!" he cried suddenly. "Did you see?"

"I saw him wipe his mouth," said Carnes doubtfully.

"All right, now watch his jaws just before the gun

goes."

The final heat was a duplicate of the first preliminary. Ladd took an early lead which he held for three-fourths of the distance to the tape, then his pace slackened and he finished only a bare ten yards ahead of the next runner. The time tied his previous world's record of eight and four-fifths seconds.

"He crunched and swallowed all right, Doctor," said Carnes.

"That is all I wanted to be sure of. Now Carnes, here is something for you to do. Get hold of the United States Commissioner and get a John Doe warrant and go back to the hotel with it and wait for me. I may phone you at any minute and I may not. If I don't, wait in your room until you hear from me. Don't leave it for a minute."

"Where are you going, Doctor?"

"I'm going down and congratulate Mr. Ladd. An old track man like me can't let such an opportunity pass."

"I don't know what this is all about, Doctor," replied Carnes, "but I know you well enough to obey orders and to keep my mouth shut until it is my turn to speak."

Few men could resist Dr. Bird when he set out to make a favorable impression, and even a world's champion is apt to be flattered by the attention of one of the greatest scientists of his day, especially when that scientist has made an enviable reputation as an athlete in his college days and can talk the jargon of the champion's particular sport. Henry Ladd promptly capitulated to the charm of the doctor and allowed himself to be led away to supper at Bird's club. The supper passed off pleasantly, and when the doctor requested an interview with the young athlete in a private room, he gladly consented. They entered the room together, remained for an hour and a half, and then came out. The smile had left Ladd's face and he appeared nervous and distracted. The doctor talked cheerfully with him but kept a firm grip on his arm as they descended the stairs together. They entered a telephone booth where the doctor made several calls,

and then descended to the street, where they entered a taxi.

"Maywood airdrome," the doctor told the driver.

Two hours later the big Martin bomber which had carried the doctor to Chicago roared away into the night, and Bird turned back, reentered the taxi, and headed for the city alone.

When Carnes received the telephone call, which was one of those the doctor made from the booth in his club, he hurried over to the First National Bank. His badge secured him an entrance and he found Casey busily engaged in rigging up an elaborate piece of apparatus on one of the balconies where guards were normally stationed during banking hours.

"Dr. Bird said to tell you to keep on the job all night if necessary," he told Casey. "He thinks he will need your machine to-morrow."

"I'll have it ready to turn on the power at four A.M.," replied Casey.

Carnes watched him curiously for a while as he soldered together the electrical connections and assembled an apparatus which looked like a motion picture projector.

"What are you setting up?" he asked at length.

"It is a high speed motion picture camera," replied Casey, "with a telescopic lens. It is a piece of apparatus which Dr. Bird designed while he was in Washington last week and which I made from his sketches, using some apparatus we had on hand. It's a dandy, all right."

"What is special about it?"

"The speed. You know how fast an ordinary movie is taken, don't you? No? Well, it's sixteen exposures per second. The slow pictures are taken sometimes at a hundred and twenty-eight or two hundred and fifty-six exposures per second, and then shown at sixteen. This affair will take half a million pictures per second."

"I didn't know that a film would register with that short an exposure."

"That's slow," replied Casey with a laugh. "It all depends on the light. The best flash-light powder gives a flash about one ten-thousandth of a second in duration, but that is by no means the speed limit of the film. The only trouble is enough light and sufficient shutter speed. Pictures have been taken by means of spark photography with an exposure of less than one three-millionth of a second. The whole secret of this machine lies in the shutter. This big disc with the slots in the edge is set up before the lens and run at such a speed that half a million slots per second pass before the lens. The film, which is sixteen millimeter X-ray film, travels behind the lens at a speed of nearly five miles per second. It has to be gradually worked up to this speed, and after the whole thing is set up, it takes it nearly four hours to get to full speed."

"At that speed, it must take a million miles of film before you get up steam."

"It would, if the film were being exposed. There is only about a hundred yards of film all told, which will run over these huge drums in an endless belt. There is a regular camera shutter working on an electric principle which remains closed. When the switch is tripped, the shutter opens in about two thirty-thousandths of a second, stays open just one one-hundredth of a second, and then closes. This time is enough to expose nearly all of our film. When we have our picture, I shut the current down, start applying a magnetic brake, and let it slow down. It takes over an hour to stop it without breaking the film. It sounds complicated, but it works all right."

"Where is your switch?"

"That is the trick part of it. It is a remote control affair. The shutter opens and starts the machine taking pictures when the back door of the paying teller's cage is opened half an inch. There is also a hand switch in the line that can be opened so that you can open the door without setting off the camera, if you wish. When the hand switch is closed and the door opened, this is what happens. The shutter on the

camera opens, the machine takes five thousand pictures during the next hundredth of a second, and then the shutter closes. Those five thousand exposures will take about five minutes to show at the usual rate of sixteen per second."

"You said that you had to get plenty of light. How are you managing that?"

"The camera is equipped with a special lens ground out of rock crystal. This lens lets in ultra-violet light which the ordinary lens shuts out, and X-ray film is especially sensitive to ultra-violet light. In order to be sure that we get enough illumination, I will set up these two ultra-violet floodlights to illumine the cage. The teller will have to wear glasses to protect his eyes and he'll get well sunburned, but something has to be sacrificed to science, as Dr. Bird is always telling me."

"It's too deep for me," said Carnes with a sigh. "Can I do anything to help? The doctor told me to stand by and do anything I could."

"I might be able to use you a little if you can use

tools," said Casey with a grin. "You can start bolting together that light proof shield if you want to."

"Well, Carnes, did you have an instructive night?" asked Dr. Bird cheerfully as he entered the First National Bank at eight-thirty the next morning.

"I don't see that I did much good, Doctor. Casey would have had the machine ready on time anyway, and I'm no machinist."

"Well, frankly, Carnes, I didn't expect you to be of much help to him, but I did want you to see what Casey was doing, and a little of it was pretty heavy for him to handle alone. I suppose that everything is ready?"

"The motor reached full speed about fifteen minutes ago and Casey went out to get a cup of coffee. Would you mind telling me the object of the whole thing?"

"Not at all. I plan to make a permanent record of the work of the most ingenious bank robber in the world. I hope he keeps his word."

"What do you mean?"

"Three days ago when Sturtevant sweated a 'confession' out of poor Winston, the bank got a message that the robbery would be repeated this morning and dared them to prevent it. Rogers thought it was a hoax, but he telephoned me and I worked the Bureau men night and day to get my camera ready in time for him. I am afraid that I can't do much to prevent the robbery, but I may be able to take a picture of it and thus prevent other cases of a like nature."

"Was the warning written?"

"No. It was telephoned from a pay station in the loop district, and by the time it was traced and men got there, the telephoner was probably a mile away. He said that he would rob the same cage in the same manner as he did before."

"Aren't you taking any special precautions?"

"Oh, yes, the bank is putting on extra guards and

making a lot of fuss of that sort, probably to the great amusement of the robber."

"Why not close the cage for the day?"

"Then he would rob a different one and we would have no way of photographing his actions. To be sure, we will put dummy money there, bundles with bills on the outside and paper on the inside, so if I don't get a picture of him, he won't get much. Every bill in the cage will be marked as well."

"Did he say at what time he would operate?"

"No, he didn't, so we'll have to stand by all day. Oh, hello, Casey, is everything all right?"

"As sweet as chocolate candy, Doctor. I have tested it out thoroughly, and unless we have to run it so long that the film wears out and breaks, we are sitting pretty. If we don't get the pictures you are looking for, I'm a dodo, and I haven't been called that yet."

"Good work, Casey. Keep the bearings oiled and pray

that the film doesn't break."

The bank had been opened only ten minutes when the clangor of gongs announced a robbery. It was practically a duplicate of the first. The paying teller had turned from his window to take some bills from his rack and had found several dozens of bundles missing. As the gongs sounded, Dr. Bird and Casey leaped to the camera.

"She snapped, Doctor!" cried Casey as he threw two switches. "It'll take an hour to stop and half a day to develop the film, but I ought to be able to show you what we got by to-night."

"Good enough!" cried Dr. Bird. "Go ahead while I try to calm down the bank officials. Will you have everything ready by eight o'clock?"

"Easy, Doctor," replied Casey as he turned to the magnetic brake.

By eight o'clock quite a crowd had assembled in a private room at the Blackstone Hotel. Besides Dr. Bird

and Carnes, Rogers and several other officials of the First National Bank were present, together with Detective-Captain Sturtevant and a group of the most prominent scientists and physicians gathered from the schools of the city.

"Gentlemen," said Dr. Bird when all had taken seats facing a miniature moving picture screen on one wall, "to-night I expect to show you some pictures which will, I am sure, astonish you. It marks the advent of a new departure in transcendental medicine. I will be glad to answer any questions you may wish to ask and to explain the pictures after they are shown, but before we start a discussion, I will ask that you examine what I have to show you. Lights out, please!"

He stepped to the rear of the room as the lights went out. As his eyes grew used to the dimness of the room he moved forward and took a vacant seat. His hand fumbled in his pocket for a second.

"Now!" he cried suddenly.

In the momentary silence which followed his cry, two

dull metallic clicks could be heard, and a quick cry that was suddenly strangled as Dr. Bird clamped his hand over the mouth of the man who sat between him and Carnes.

"All right, Casey," called the doctor.

The whirl of a projection machine could be heard and on the screen before them leaped a picture of the paying teller's cage of the First National Bank.

Winston's successor was standing motionless at the wicket, his lips parted in a smile, but the attention of all was riveted on a figure who moved at the back of the cage. As the picture started, the figure was bent over an opened suitcase, stuffing into it bundles of bills. He straightened up and reached to the rack for more bills, and as he did so he faced the camera full for a moment. He picked up other bundles of bills, filled the suitcase, fastened it in a leisurely manner, opened the rear door of the cage and walked out.

"Again, please!" called Dr. Bird. "And stop when he faces us full."

The picture was repeated and stopped at the point indicated.

"Lights, please!" cried the doctor.

The lights flashed on and Dr. Bird rose to his feet, pulling up after him the wilted figure of a middle-aged man.

"Gentlemen," said the doctor in ringing tones, "allow me to present to you Professor James Kirkwood of the faculty of the Richton University, formerly known as James Collier of the Bureau of Standards, and robber of the First National Bank."

Detective-Captain Sturtevant jumped to his feet and cast a searching glance at the captive.

"He's the man all right," he cried. "Hang on to him until I get a wagon here!"

"Oh, shut up!" said Carnes. "He's under federal arrest just now, charged with the possession of narcotics. When we are through with him, you can have him if

you want him."

"How did you get that picture, Doctor?" cried the cashier. "I watched that cage every minute during the morning and I'll swear that man never entered and stole that money as the picture shows, unless he managed to make himself invisible."



IMAGE DESCRIPTION

"You're closer to the truth than you suspect, Mr. Rogers," said Dr. Bird. "It is not quite a matter of invisibility, but something pretty close to it. It is a matter of catalysts."

"What kind of cats?" asked the cashier.

"Not cats, Mr. Rogers, catalysts. Catalysts is the name of a chemical reaction consisting essentially of a decomposition and a new combination effected by means of a catalyst which acts on the compound bodies in question, but which goes through the reaction itself unchanged. There are a great many of them which are used in the arts and in manufacturing, and while their action is not always clearly understood, the results are well known and can be banked on.

"One of the commonest instances of the use of a catalyst is the use of sponge platinum in the manufacture of sulphuric acid. I will not burden you with the details of the 'contact' process, as it is

known, but the combination is effected by means of finely divided platinum which is neither changed, consumed or wasted during the process. While there are a number of other catalysts known, for instance iron in reactions in which metallic magnesium is concerned, the commonest are the metals of the platinum group.

"Less is known of the action of catalysts in the organic reactions, but it has been the subject of intensive study by Dr. Knolles of the Bureau of Standards for several years. His studies of the effects of different colored lights, that is, rays of different wave-lengths, on the reactions which constitute growth in plants have had a great effect on hothouse forcing of plants and promise to revolutionize the truck gardening industry. He has speeded up the rate of growth to as high as ten times the normal rate in some cases.

"A few years ago, he and his assistant, James Collier, turned their attention toward discovering a catalyst which would do for the metabolic reactions in animal life what his light rays did for plants. What his method

was, I will not disclose for obvious reasons, but suffice it to say that he met with great success. He took a puppy and by treating it with his catalytic drugs, made it grow to maturity, pass through its entire normal life span, and die of old age in six months."

"That is very interesting, Doctor, but I fail to see what bearing it has on the robbery."

"Mr. Rogers, how, on a dark day and in the absence of a timepiece, would you judge the passage of time?"

"Why, by my stomach, I guess."

"Exactly. By your metabolic rate. You eat a meal, it digests, you expend the energy which you have taken into your system, your stomach becomes empty and your system demands more energy. You are hungry and you judge that some five or six hours must have passed since you last ate. Do you follow?"

"Certainly."

"Let us suppose that by means of some tonic, some

catalytic drug, your rate of metabolism and also your rate of expenditure of energy has been increased six fold. You would eat a meal and in one hour you would be hungry again. Having no timepiece, and assuming that you were in a light-proof room, you would judge that some five hours had passed, would you not?"

"I expect so."

"Very well. Now suppose that this accelerated rate of digestion and expenditure of energy continued. You would be sleepy in perhaps three hours, would sleep about an hour and a quarter, and would then wake, ready for your breakfast. In other words, you would have lived through a day in four hours."

"What advantage would there be in that?"

"None, from your standpoint. It would, however, increase the rate of reproduction of cattle greatly and might be a great boom to agriculture, but we will not discuss this phase now. Suppose it were possible to increase your rate of metabolism and expenditure of energy, in other words, your rate of living, not six

times, but thirty thousand times. In such a case you would live five minutes in one one-hundredth of a second."

"Naturally, and you would live a year in about seventeen and one-half minutes, and a normal lifespan of seventy years in about twenty hours. You would be as badly off as any common may-fly."

"Agreed, but suppose that you could so regulate the dose of your catalyst that its effect would last for only one one-hundredth of a second. During that short period of time, you would be able to do the work that would ordinarily take you five minutes. In other words, you could enter a bank, pack a satchel with currency and walk out. You would be working in a leisurely manner, yet your actions would have been so quick that no human eye could have detected them. This is my theory of what actually took place. For verification, I will turn to Dr. Kirkwood, as he prefers to be known now."

"I don't know how you got that picture, but what you have said is about right," replied the prisoner.

"I got that picture by using a speed of thirty thousand times the normal sixteen exposures per second," replied Dr. Bird. "That figure I got from Dr. Knolles, the man who perfected the secret you stole when you left the Bureau three years ago. You secured only part of it and I suppose it took all your time since to perfect and complete it. You gave yourself away when you experimented on young Ladd. I was a track man myself in my college days and when I saw an account of his running, I smelt a rat, so I came back and watched him. As soon as I saw him crush and swallow a capsule just as the gun was fired, I was sure, and got hold of him. He was pretty stubborn, but he finally told me what name you were running under now, and the rest was easy. I would have got you in time anyway, but your bravado in telling us when you would next operate gave me the idea of letting you do it and photographing you at work. That is all I have to say. Captain Sturtevant, you can take your prisoner whenever you want him."

"I reckoned without you, Dr. Bird, but the end hasn't come yet. You may send me up for a few years, but

you'll never find that money. I'm sure of that."

"Tut, tut, Professor," laughed Carnes. "Your safety deposit box in the Commercial National is already sealed until a court orders it opened. The bills you took this morning were all marked, so that is merely additional proof, if we needed it. You surely didn't think that such a transparent device as changing your name from 'James Collier' to 'John Collyer' and signing with your left hand instead of your right would fool the secret service, did you? Remember, your old Bureau records showed you to be ambidextrous."

"What about Winston's confession?" asked Rogers suddenly.

"Detective-Captain Sturtevant can explain that to a court when Mr. Winston brings suit against him for false arrest and brutal treatment," replied Carnes.

"A very interesting case, Carnes," remarked the doctor a few hours later. "It was an enjoyable interlude in the routine of most of the cases on which

you consult me, but our play time is over. We'll have to get after that counterfeiting case to-morrow."